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EFFECTS OF AGE, SOCIAL STATUS, SEX, AND RACE UPON THE UNDERSTANDING OF WORD MEANINGS INDEPENDENT OF SENTENCE CONTEXT.

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INDIVIDUAL DIFFERENCES WHICH AFFECT THE ABILITY TO ACQUIRE WORD UNDERSTANDING WERE INVESTIGATED. GROUPS OF EIGHT CHILDREN WERE ADMINISTERED THE "WORD CONTEXT TEST." TWELVE DIFFERENT GROUPS WERE FORMED BY VARYING GRADE LEVEL (THIRD VERSUS SIXTH), SEX, AND SOCIOECONOMIC STATUS (WHITE MIDDLE CLASS, NEGRO LOWER STATUS, AND WHITE LOWER STATUS). MIDDLE-CLASS CHILDREN SHOWED A SIGNIFICANTLY HIGHER LEVEL OF VERBAL OUTPUT THAN THEIR LOW-STATUS COUNTERPARTS. THIS WAS CONSISTENT WITH THE DIFFERENCES EMPHASIS PLACED ON VERBALIZATION BY DIFFERENT SOCIAL STRATA. IN THE ADEQUACY OF THE SOLUTIONS THAT WERE OFFERED AND THE LEVEL OF COGNITIVE PROCESSES USED, SIXTH GRADERS PERFORMED AT A CONSISTENTLY HIGHER LEVEL THAN THIRD GRADERS. CONTRARY TO HYPOTHESIS, THERE WERE NO SIGNIFICANT DIFFERENCES BETWEEN GROUPS FROM DIFFERENT SOCIAL STRATA ON ANY OF THE MEASURES THAT WERE SCORED. THERE WAS A CONSISTENT SEX DIFFERENCE IN THE USE OF WORD-SENTENCE FUSION AS A SIGNIFICATION PROCESS, WITH GIRLS SHOWING CONSISTENTLY MORE SUCH RESPONSES THAN BOYS. (GC)

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Clark University

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Introduction

The present study investigated the differences between children of different racial and socioeconomic status in the effects of verbal context upon their understanding of words. The study grew out of two different lines of research, one in which racial and socioeconomic differences in general intellectual performance have been examined, another in which the acquisition of word meanings has been studied developmentally.

On the one hand, there is an extensive body of evidence that shows that lower-class children perform at consistently poorer levels on standard intelligence tests than do middle-class children, and that Negroes do less well than whites. Evidence for this generalization is too extensive to require documentation here (c.f. Anastasi, 1958; Masland et al, 1958; Hunt, 1961; Dreger and Miller, 1960; Deutsch and Brown, 1964; and Pettigrew, 1964). Much, if not all, of these differences appear to be attributable to the differential intellectual stimulation that is offered in different racial and economic subgroups. In particular, there is evidence that differences in tested intelligence are related to the different kinds of verbal instruction that children receive in the different social strata: children in "disadvantaged" social groups have been found to use language both more sparsely and more concretely than do those children from the verbally rich middle-class environment (Deutsch, 1963; Bernstein, 1961, 1964; Bereiter and Engelmann, 1966).

From a different quarter there have been a series of investigations, initiated by Heinz Werner and Edith Kaplan (1952) into the acquisition of word meanings. Werner and Kaplan began their work with the observation that the appropriate use of words requires the employment of two complementary semantic principles: first, the recognition that a word has a relatively precise and stable meaning of its own; second, the awareness that a word's meaning in a particular context is strongly influenced by the meaning of the other words with which it is associated.

To test the implications of this conclusion, Werner and Kaplan invented an ingenious instrument, the Word Context Test. This test was made up of several sets of six different sentences. In each of the six sentences in a set, the same nonsense word was inserted. The subject's task was to examine each sentence in turn, and to infer the meaning of the unknown word from the way it was used in the sentence. Since each nonsense word had only one correct meaning, the presentation of that word in new contexts permitted the subject gradually to narrow the range of meanings it could possess and, eventually, to discover the meaning that was common to all sentences in the series. By encouraging the subject to explain in detail his reasons for assigning one or another meaning to a word, the authors were able to ascertain (a) whether, and when, he actually achieved a single delimited meaning for the unknown word,

and (b) the extent to which the meanings of other words in the sentence, or even of the entire sentence, were incorporated into the solution that was offered.

On the basis of Werner's developmental theory (1948) the authors predicted that younger children would have greater difficulty than older ones in treating words as relatively distinct entities, and would be more likely to permit the meanings of other parts of the sentence to intrude upon the delimited meaning of the unknown word. Werner and Kaplan identified a number of different processes by which such intrusions might occur, the processes which ranged in degree of severity from a complete fusion of word and sentence to relatively minor confusions of verbal inflection. Using children 9, 10, 11, 12, and 13 years old, they showed a consistent decline in the frequency of low-level signification processes with increasing age. Subsequently, Baker (1953) showed that the same kinds of differences characterized the performances on the Word Context Test of schizophrenic patients as compared to normal subjects.

It seems plausible that the known differences in use of language by children from different social strata should be reflected in differential levels of performance on the Word Context Test. Werner (1948) has shown that cognitive development involves the increased differentiation and articulation of discrete aspects of the phenomena under consideration, and an increased integration of these conceptions into related, hierarchically-organized systems. Such development does not occur in some intellectual sphere until the individual is brought into intimate contact with the material of that sphere. Given the sparseness of verbal interaction in the social experiences of low-status Negro and white children, it seemed plausible that they would be slow to develop the kinds of differentiation between word and sentential context that would permit them to deal effectively with the Word Context Test. Middle-class children, on the other hand, appear to be subjected to concentrated training in the use of language; among such children, therefore, one should find a relatively high level of performance on the Word Context Test.

To test these expectations, a modified form of the Word Context Test was administered, individually, to twelve groups of children. Included were four groups of Negro children from low-status neighborhoods, four groups of white children from the same neighborhoods, and four groups of white children from a middle-class neighborhood. Within each of the larger groupings, the four subgroups were formed by varying systematically the sex of the child and whether he was in the third or the sixth grade.

It was anticipated, of course, that the third graders would show greater use of low-level processes than would sixth graders, a confirmation of the results of Werner and Kaplan.

More to the point of the present study, consistent differences were expected between children from different socioeconomic strata, i.e., between children from the eight low-status groups and those from the four high-status ones. Of particular interest was the comparison, within the low-status group, of children who differed in race.

Beyond this, it was reasoned that the differential emphasis on linguistic performance in the lower- and middle-class environments should have cumulative effects over time, so that the differences between middle- and lower-status children should be greater in the sixth grade than in the third. In short, an interaction of age with status was anticipated.

Method

Modification of the Word Context Test.

Examination of the Word Context Test that was developed by Werner and Kaplan suggested that some of the items would be differentially difficult for children from different social strata. For example, it seemed likely that such concepts as "gather," "justice," or "wither" would occur with much greater frequency in the middle-class than in the lower-class milieu. Such considerations were of little moment in the original study, for Werner and Kaplan were concerned with changes in performance between children of different ages, not between different children at the same age. However, if a bias against one social stratum were built into the test, the major hypothesis of the present study would obviously be compromised; therefore, a new version of the test was constructed, using concepts and sentences which appeared, on their face, to require knowledge that would be available in every social stratum.

The choice of sentences was for the final test based on extensive pretesting with samples of college students. Items were selected for which the correct response was offered at least occasionally, but not unanimously. The individual sentences in each set of six that was selected were then ordered so that those which most often evoked the correct response appeared last.

Two forms of the test were constructed, each containing six sets of six sentences. They are presented, along with instructions for administration, in Appendix A.

Subjects.

Subjects were students in either the Belmont Street, the Chandler Street, or the Tatnuck elementary schools in Worcester, Massachusetts. The Belmont Street and Chandler Street schools are located in low-income areas of the city, and serve a racially-mixed clientele. The Tatnuck school is situated in a

middle-class neighborhood in which all but a handful of the residents are white.

Since only about two percent of the population of Worcester is non-white, there was a limited number of potential Negro subjects even in the Belmont and Chandler Street schools. Therefore, the composition of the sample for the experiment was determined in considerable part by the Negro students who were available. Thus, selection of subjects was initiated by choosing, at random, eight Negro boys and eight Negro girls from the third and the sixth grades of the Belmont Street and Chandler Street schools. The tested intelligence of these children was determined from existing records in the schools. White subjects were then selected from the third and sixth grades of both the Belmont and Chandler Street schools, in numbers equal to the number of Negro students from those schools. Eight male and female white subjects were also chosen from the third and sixth grade of the Tatnuck school. White subjects were selected in such a way that the mean age and tested intelligence were approximately the same for children in the same grade from all three populations -- Negro lower status, while lower status, and white middle class.

Administering the Word Context Test.

Half of the subjects in each of the 12 experimental groups was administered Form A of the Word Context Test and half was administered Form B. Within each form, the sets of sentences were presented in the same order to all subjects. Owing to differences between subjects in the time they took to respond to items, not all were able to complete all six sets of sentences; therefore, the results reported below are based only on responses to the first four sets of sentences for each form of the Word Context Test. Since Form A and Form B of the test did not yield substantially different results, the form of the test that subjects responded to was not included as a factor in the analyses that will be presented below.

The sentences in each series were typed in capital letters on six 3 x 5 file cards, one sentence per card. The experimenter showed one card at a time to the subject, read the sentence aloud with the subject, and then asked the subject what the unknown word meant. When the subject offered a solution, the experimenter asked "Can you tell me how it means that?" and followed the subject's reply with whatever additional questions seemed necessary to help elucidate the meaning the word had for the subject. When a solution was proposed for sentences late in a series, the subject was asked to explain whether and how the same solution might be used in earlier sentences of the series.

Scoring the Responses.

Two different types of scores were derived from the protocols, one concerned with the accuracy of responses, the other with the signification

processes that the responses reflected.

As to accuracy, each solution from each subject was scored according to the detailed instructions in Appendix B. These scores were subsequently combined so that each solution was adjudged either correct, adequate but not correct, or inadequate.

Concerning signification processes, each response unit was scored according to the categories that are described in detail in Appendix B. For the analyses that will be discussed below, these categories were combined to produce six different kinds of scores:

(a) Word-Sentence Fusion, in which the meaning of all or a major part of the sentence was included in the solution that the subject offered for the unknown word.

(b) Embeddedness, in which the meaning of the word could not be separated from the context in which it occurred, so that the subject combined a number of different concrete solutions into one in order to account for the word's meanings in several different sentences.

(c) Generalization, which involved the proposal of an overly-general solution which received different interpretations in different sentences.

(d) Non-Sentential Holophrasis, in which the unknown word was made to represent a complex idea, instead of a delimited meaning, but the content of this complex idea did not derive from the sentence in which the word occurred.

(e) Relatively Differentiated Responses, which did not involve the condensation of a complex meaning into one word or the use of an overly-general solution whose meaning shifted from sentence to sentence, but in which, nevertheless, subtle shifts in meaning occurred, such as changes in the inflection of the unknown word.

(f) Adequate Responses, which were appropriate to the context in which they occurred and did not involve any of the processes enumerated above.

Reliability of Scoring.

One coder scored all 96 protocols. In addition, 36 protocols were scored independently by another coder who had spent several weeks discussing with the primary coder the manner in which the different categories were to be used. Inter-coder agreement was evaluated by determining the proportion of times the check coder agreed with the primary coder in the assignment of a response unit to a scoring category.

There was very high agreement in scoring solutions as either correct, adequate, or inadequate. The coders agreed in their assignments of 86.6% of the responses.

Agreement was not so high in scoring for the signification processes, which is not unexpected considering the complexity of definition of some of these processes. The proportion of agreement of the check coder with the primary coder ranged from 36% for scores of Embeddedness to 88% for scores of Adequate Response. Three-fourths of the low-level signification responses were scored as either Word-Sentence Fusion or Non-Sentential Holophrasis. Fortunately, there was relatively high agreement between the check coder and the primary coder in scoring these two categories; agreement was 62% and 63% respectively. Accordingly, we shall confine the major part of our analysis of signification processes to the comparison of groups in their use of these two categories. For each subject, the scores used are those that were assigned by the primary coder.

Summary of Design.

This study was conducted as a 2 x 2 x 3 factorial design, with eight subjects per cell, the factors being sex, grade level, and population represented. Samples from the three populations -- middle-class white children and lower-status white and Negro children -- were equated for age and for measured intelligence.

Results

1. Verbal output. Separate 2 x 2 x 3 factorial analyses of variance were performed on the total number of solutions to sentences that were offered and on the total number of response units that were scored for signification processes. These two scores were highly correlated, though they are not identical, and the two analyses produced virtually identical results: a significant main effect for over-all differences between the three groups, but no significant differences due to grade level, to sex, or to any interaction of the three independent variables. Examination of the means of the three groups showed that middle-class subjects gave more responses than subjects from either lower-status group, and that white and Negro lower-status subjects did not differ significantly in number of responses. For example, the mean number of solutions offered was 50.25 for middle-class white children, and 45.56 and 45.09 for lower-status white and Negro children respectively.

2. Adequacy of solutions. For each subject, a determination was made of the proportion of correct or adequate solutions to the total number of solutions he offered, yielding a measure of the adequacy of his performance. These proportions were then subjected to an arcsine transformation, and the transformed scores were subjected to a 2 x 2 x 3 analysis of variance. The only significant source of variance in the analysis was that due to grade level:

responses of sixth grade children were significantly more often adequate or correct than were those of third grade children; in fact, grade level accounted for exactly one-fourth of the total variance of the transformed accuracy scores. Neither sex nor social status, nor any of the interactions showed significant effects.

3. Signification processes. Scores of signification processes were subjected to two analyses of variance. In the first, a determination was made, for each subject, of the proportion of word-sentence fusion to the total number of signification response units he produced. An arcsine transformation was then made of these proportions, and a 2 x 2 x 3 analysis of variance was performed on the transformed scores. There were two significant sources of variance in this analysis: the main effect for grade level and that for sex of the subject. The effect for grade level accounted for 22% of the total variance in this analysis; third graders used significantly more word-sentence fusion than did sixth graders (means, respectively, of 19.9% and 6.6% of the total number of response units the subjects gave). As to sex of the subject, girls showed significantly more word-sentence fusion than did boys -- 16.2% as against 10.2% of their total number of signification response units; this factor accounted for 4.7% of the total variance in this analysis.

In addition, an analysis was made of subjects' use of non-sentential holophrasis in their signification responses. To make sure that this analysis would be independent of that for word-sentence fusion, a determination was made, for each subject, of the number of responses he gave that were scored in categories other than word-sentence fusion. The proportion of non-sentential holophrasis to this reduced total was then determined for each subject; these proportions were transformed, as above, and an analysis of variance was carried out on the transformed scores. Only grade level produced a significant effect in this analysis: 24.4% of the third graders' responses exclusive of word-sentence fusion and 17.2% of the sixth graders' were scored as non-sentential holophrasis.

Discussion

There are two unexpected, somewhat perplexing aspects to these results: the failure to observe significant differences between groups from different social strata, and the significant difference between boys and girls in the use of responses that reflected word-sentence fusion.

Differences between different social strata occurred only with respect to the over-all verbal output; subjects from the different groups did not differ in the proportion of their solutions that were adequate to the context nor in their use of low-level signification processes. The difference in total output is consonant with the known differences between social strata in

the emphasis that is placed upon verbalization; why this difference should not be accompanied by a difference in the level of signification, however, is not clear. If cultural deprivation is language deprivation, as Bereiter and Engelmann suggest (1966), such language deprivation does not appear to show up in precisely the area where it would be expected, in the contamination of the meaning of a word by the context in which it appears. In any event, the present results suggest that when children from different social strata are equated for level of intellectual performance, they do not show differential use of inadequate or developmentally immature responses to the Word Context Test.

The obtain sex differences, on the other hand, run systematically counter to what would be expected. The literature on sex differences clearly suggests that girls are consistently more fluent verbally than boys. In the present results, girls were consistently more prone to use word-sentence fusion than boys, whatever their grade level, their social status, or their race. The reason for this difference remains obscure. It was suggested to us by Professor Bernard Kaplan that the difference may reflect the greater field dependence among women that is picked up by Witkin and his associates in their investigations of sex differences in perception. If so, the result becomes an intriguing one, for Witkin has not typically found differences in conceptualization which paralleled his obtained differences in perception. In any event, this outcome suggests that the generalization that women show superior verbal performance to that of men should be tempered.

Despite these unexpected results, the consistent differences between grade level confirm the findings of Werner and Kaplan of a decrease, with increasing age, in the frequency of solutions which condense a complex idea into a single word.

Summary

In a 2 x 2 x 3 factorial design, groups of eight children were administered the Word Context Test. Twelve different groups were formed by varying grade level (third vs. sixth), sex, and socioeconomic status (white middle class, Negro lower status, and white lower status). Middle-class children showed a significantly higher level of verbal output than their low-status counterparts. In the adequacy of the solutions that were offered, and the level of signification processes used, there were consistent differences due to grade level, with sixth graders performing at a consistently higher level than third graders. Contrary to hypothesis, there were not significant differences between groups from different social strata on any of the measures that were scored. There was a consistent sex difference in the use of word-sentence fusion as a signification process, with girls showing consistently more such responses than boys.

References

Anastasi, Anne Differential Psychology. New York: Macmillan, 1958.

Baker, R. W. The Acquisition of Verbal Concepts In Schizophrenia. Unpublished Doctoral Dissertation, Clark University, 1953.

Bereiter, C. and Engelmann, S. Teaching Disadvantaged Children in the Preschool. Englewood Cliffs, N. J.: Prentice Hall, 1966.

Bernstein, B. "Social Class and Linguistic Development," in Halsey, A. H., Floud, J., and Anderson, C. A. (Eds.) Education, Economy, and Society. New York: Free Press, 1961.

Bernstein, B. "Elaborated and Restricted Codes," American Anthropologist, 1964, 66, No. 6, Part 2.

Deutsch, M. "The Disadvantaged Child in the Learning Process," in Parson, A. H. (Ed.), Education in Depressed Areas. New York: Teachers College, 1963.

Deutsch, M. and Brown, B. "Social Influences in Negro-White Intelligence Differences," Journal of Social Issues, 1964, 20, 24-35.

Dreger, R.M. and Miller, K.S. "Comparative Psychological Studies of Negroes and Whites in the United States," Psychological Bulletin, 1960, 57, 361-402.

Hunt, J. Mc V. Intelligence and Experience. New York: Ronald Press 1961.

Masland, R. L., Sarason, S. B., and Gladwin, T. Mental Subnomality. New York: Basic Books, 1958.

Pettigrew, T. F. A Profile of the Negro American. Princeton, N. J.: D. Van Nostrand Co., Inc., 1964.

Werner, H. Comparative Psychology of Mental Development. Chicago: Follett, 1948.

Werner, H. and Kaplan, Edith, "The Acquisition of Word Meanings: A Developmental Study," Monographs of the Society for Research in Child Development, Inc., 1950, XV, Serial No. 51, No. 1.

APPENDIX A. THE WORD CONTEXT TEST

1. The Test

Form A

a. S OLDEVE (Correct Solution: Church)
   1. THE SOLDEVE YOU ARE LOOKING FOR IS AROUND THE CORNER, NEXT TO THE PARK.
   2. A SOLDEVE IS A QUIET PLACE.
   3. I OFTEN MEET MANY PEOPLE I KNOW AT SOLDEVE.
   4. EVERYONE IS SERIOUS WHEN THEY GO INTO A SOLDEVE.
   5. YOU CAN SOMETIMES HEAR PEOPLE SINGING WHEN YOU WALK PAST A SOLDEVE.
   6. MOST PEOPLE GO TO SOLDEVE ONCE A WEEK.

b. ASHDER (Correct Solution: Help)
   1. THERE ARE SOME PEOPLE WHO ALWAYS LIKE TO BE ABLE TO ASHDER.
   2. "I AM SURE HE WOULD ASHDER YOU IF YOU ASKED HIM," MIKE TOLD HIS SISTER.
   3. TOM WOULD NEVER ASHDER ANYONE ELSE WHEN THEY WERE WORKING.
   4. JAMES WISHED HE COULD DO SOMETHING TO ASHDER HIS MOTHER.
   5. HE WAS TOO STUBBORN TO LET ANYONE ASHDER HIM.
   6. HENRY HAD TO ASHDER HIS BROTHER DELIVER NEWSPAPERS EVERY AFTERNOON AFTER SCHOOL.

c. CONTAVISH (Correct Solution: Part)
   1. AS HE LOOKED AT THE PICTURE, JOHN TRIED TO DECIDE WHICH CONTAVISH HE LIKED BEST.
   2. A ROOF IS A CONTAVISH OF A BUILDING.
   3. IF YOU FIND THE CONTAVISH THAT IS BROKEN, I WILL HELP YOU FIX IT.
   4. GIVE ME THE CONTAVISH THAT IS LEFT.
   5. MARY ASKED SUE TO GIVE HER THE BIGGEST CONTAVISH.
   6. A BOY'S ARM IS A CONTAVISH OF HIS BODY.

d. HUDRAY (Correct Solution: Air)
   1. THEY THOUGHT THEY HAD FOUND THE TREASURE, BUT THERE WAS NOTHING IN THE BOX BUT HUDRAY.
   2. THE BALL WENT THROUGH THE HUDRAY AND BOUNCED ON THE SIDEWALK.
   3. A PERSON CAN NEVER DO WITHOUT HUDRAY.
   4. NO MATTER WHERE YOU GO, HUDRAY IS ALL AROUND YOU.

5. THEY OPENED THE WINDOW AND THE DOOR TO LET SOME HUDRAY IN.
6. YOU CANNOT KICK A FOOTBALL VERY FAR UNLESS IT IS FILLED WITH HUDRAY.

e. CORPLUM (Correct Solution: Rock)
1. SOME PEOPLE COLLECT STAMPS, SOME COLLECT PICUTRES, AND OTHERS COLLECT CORPLUMS.
2. IF THE YARD IS TO BE USED FOR BICYCLE RIDING, ALL THOSE CORPLUMS SHOULD BE MOVED AWAY.
3. "BE CAREFUL WHEN YOU LIFT THAT CORPLUM," JIM WARNED HIS FRIEND.
4. THE BOY BRUISED HIS FOOT ON THE CORPLUM.
5. IT IS SILLY TO TRY TO CUT A CORPLUM WITH A KNIFE, SINCE IT CANNOT BE DONE.
6. SOME MOUNTAINS ARE MADE OF SOLID CORPLUM.

f. PROTEMA (Correct Solution: Finish)
1. IF A JOB IS HARD, HARRY DOES NOT PROTEMA IT.
2. PHILIP ASKED JOHN TO HELP HIM PROTEMA HIS HOMEWORK.
3. GEORGE WAS THE FIRST ONE IN THE WHOLE CLASS TO PROTEMA.
4. WE GOT SO TIRED, WE COULD NOT PROTEMA THE GAME.
5. TO PROTEMA A JOB, YOU MUST HAVE PATIENCE.
6. THEY TRIED TO PROTEMA THE WORK BEFORE IT RAINED.

Form B

a. REPLOGLE (Correct Solution: School)
1. OUR REPLOGLE HAS A HIGH FENCE AROUND PART OF IT.
2. MOST OF MY FRIENDS DID NOT HAVE REPLOGLE THAT DAY.
3. BILL HAD TO LEAVE REPLOGLE BECAUSE HE WAS ILL.
4. WHEN VACATION TIME COMES, WE SAY GOODBY TO REPLOGLE.
5. ON RAINY DAYS, GRACE TAKES HER LUNCH TO REPLOGLE.
6. REPLOGLE IS A PLACE WHERE WE LEARN MANY THINGS.

b. DEGARET (Corret Solution: Walk)
1. WE CAN TELL HE IS BUSY BY THE WAY HE DEGARETS.
2. HE WAS SO TIRED, HE FOUND IT HARD TO DEGARET.
3. ON SUNDAY, I DEGARET WITH MY FATHER.
4. THE BABY LEARNED TO DEGARET ALL BY HIMSELF.
5. YOU HAVE TO BE STRONG TO DEGARET AS MUCH AS FIVE MILES AT A TIME.
6. I LIKE TO WATCH PEOPLE DEGARET ALONG THE STREET.

c. ONTRAVE (Correct Solution: Idea)
   1. NOBODY HAS EVER SEEN AN ONTRAVE.
   2. WHY DON'T YOU ASK JANE ABOUT HER ONTRAVE FOR THE PLAY?
   3. "THAT IS A GOOD ONTRAVE!" CRIED ALICE.
   4. IT WAS MY ONTRAVE TO GO ON THIS PICNIC.
   5. NO ONE IN THE CLASS THOUGHT THAT TONY'S ONTRAVE WOULD WORK.
   6. DO YOU HAVE ANY ONTRAVE OF HOW TO DO THIS?

d. PURLAG (Correct Solution: Read)
   1. CHUCK TOLD THE BOYS HE WOULD NOT START TO PURLAG UNTIL THEY WERE QUIET.
   2. THE SMALLER CHILDREN COULD NOT PURLAG WELL.
   3. IT IS HARD TO GET A JOB IF YOU CANNOT PURLAG.
   4. SOMETIMES MY EYES HURT WHEN I PURLAG.
   5. "HAS SHE LEARNED TO PURLAG YET?" SAID THE TEACHER TO SALLY'S MOTHER.
   6. CHILDREN LEARN TO PURLAG IN SCHOOL.

e. GUBFIND (Correct Solution: Picture)
   1. THERE WERE THREE GIRLS AND TWO BOYS IN THE GUBFIND.
   2. "DON'T YOU THINK THE GUBFIND IS VERY PRETTY?" ASKED TIM.
   3. CAN YOU MAKE A GUBFIND OF A HOUSE?
   4. A GUBFIND IS OFTEN FOUND ON THE BACK OF A POSTCARD.
   5. MY MOTHER KEEPS MY GUBFIND IN HER ROOM, ON THE DRESSER.
   6. ALLAN HAD DRAWN THE BEST GUBFIND.

f. POSKON (Correct Solution: Laugh or smile)
   1. MARY WOULD POSKON WHENEVER SHE SAW HIM COMING.
   2. IT IS A GOOD THING TO BE ABLE TO POSKON WHEN YOU HAVE TROUBLES.
   3. WE TRIED NOT TO POSKON WHEN THE DOG SNEAKED INTO THE KITCHEN AND ATE OUR DINNER.
   4. TED KNEW THEY WERE HAVING A GOOD TIME WHEN HE SAW THEM BEGIN TO POSKON.
   5. THEY TRIED TO MAKE HER POSKON, BUT SHE WAS TOO UNHAPPY.
   6. "DID THE BOYS POSKON WHEN YOU TOLD THEM THE JOKE?" ASKED TOM.

2. Suggestions for Administering the Word Context Test.

   a. Introduction.

The subject is seated at a table with the interviewer and is made comfortable. Once rapport has been established, the interviewr says

"We are going to play a game that has to do with words you have never heard before. I am going to show you a word that you don't know, and I want you to tell me what you think it means. After you have seen the word, I will show you some sentences that have the word in it, and you will tell me what you think it means then.

"For instance, suppose the word is LIBDER." (The interviewer shows the subject a card with LIBDER written on it.) "Have you ever heard that before? Do you have any idea of what LIBDER means?

"Well, let's see a sentence with the word in it." (Interviewer shows card with the sentence AT NIGHT I SLEEP IN MY LIBDER and reads the sentence aloud with the subject.)

"What do you think LIBDER might mean? How does it mean that?"

(Accept any correct answer, and suggest other possibilities -- e.g., bed, room, house, nightgown. If no answer is given, give "bed," and then push S to suggest another one.)

"Now let's look at another sentence with LIBDER in it."

(Show card with the sentence I HAVE A SOFT PILLOW ON MY LIBDER, and read the sentence aloud.)

"What do you think LIBDER means now?"

(Express the meaning with the subject.)

"Now let me explain the game again. There will be six different words that you do not know. Let's pretend, for instance, that they are used in a little town out west and no place else in the world. We want to find out what each word means, and why you think it means that. I will show you a sentence with the word in it, and ask you what the word means, and why. Then I will show you another sentence with the same word in it, and ask you what the word means then, and why. I will then show you another sentence, and so on. Every one of the words will appear in six different sentences. A word has the same meaning every time you see it. Do you understand?

"Now, this is not a test or anything like that. I just want you to try to find out what these words mean. I will show you one sentence at a time. After we read the sentence, tell me what you think the word may mean. Tell me everything you are thinking."

b. Suggestions for Probing to Arrive at Subject's Explanations for Meanings.

The interviewer's task is to help the subject make explicit his understanding of the meaning of each word. This is accomplished by inquiring into how he conceives that each solution he offers fits the meaning of the word in the sentence he is presently dealing with as well as in other sentences of the series. The following suggestions are offered concerning how the sentences should be presented, and the kinds of probes the interviewer should use.

(1) Show subject the card containing only the nonsense word and ask, "Have you ever heard it before?" and "Do you know what it means?" After exploring his responses, say, "Now let's read this, and see what you think it means in the sentence." (Show first sentence and read it aloud with the subject.)

(2) If S reads sentence inserting a solution ask, "What does _____ mean?" (If no answer is given, probe for a solution.)
   (a) When a solution is finally offered, ask "Why (how) does it mean that?" and probe for something other than mere repetition of the sentence.
   (b) If no solution is offered, repeat the sentence and then ask again what the word means. Continue as long as seems possible, or until the subject offers a solution. Probe for an explanation of this solution, then go on to the next sentence.

(3) On all sentences after the first one, once the subject gives a solution, go back to the next preceding sentence and ask "Can (does) _____ mean that in this sentence?"
   (a) If yes, "Why?" or "How?" Probe for explanation, then go back to the next preceding sentence, and repeat the question.
   (b) If no, "Why not?" Then, "Then what would you say _____ means?"
   If another solution is offered here, first ask "Why does it mean that?" Then remind S, "Okay, now remember _____ means the same thing in every sentence -- there is only one meaning." Then take this solution back to the most recent sentence given and ask,
   "Can _____ mean that here?"
   Keep pursuing this circle until the S repeats himself, arrives at a solution, or says he definitely can't answer.

(4) Where possible, never mention the solution S used.
Two exceptions:
   (a) If S continues to say that the word means x in one sentence and

y in another, you may say, "Can_____mean x in this sentence, too?" Only do this when it seems necessary to concretize the continuity of the word meaning.

(b) When S cannot think of a meaning when a new sentence is given, or when he gives a new meaning which he says will not fit an earlier sentence, first try to elicit the definition given earlier ("What did you say_____meant before?") If the earlier solution is not offered, say, "You said_____meant x in this sentence; could it mean that in this sentence?" (Why or why not, etc.)

APPENDIX B. MANUAL FOR SCORING THE WORD CONTEXT TEST

The Word Context Test used in this research consisted of twelve different sets of sentences; each single set included six sentences in which the same nonsense word was inserted. For each of these sets, the subject's task was to read each sentence in turn, and to try to determine the meaning of the nonsense word from its use in the sentence. Since each word has only one correct meaning, the presentation of a word in new contexts permits the subject gradually to narrow the range of meanings the word may possess and, eventually, to discover the meaning that is common to all sentences of the series.

As Werner and Kaplan (1952) have clearly shown, the acquisition of a word's meaning from analysis of its use in different contexts requires the subject to make use of two complementary semantic principles: on the one hand, he must recognize that the meaning of a word interacts with and is at least partially determined by the verbal context in which it appears; on the other hand, he must recognize that the word has a relatively precise, delimited, stable, self-contained meaning that remains with it irrespective of the context. Subject's performance on the Word Context Test is affected by the fact that they must use these semantic principles in an appropriate balance; substantial deficiencies in understanding the meaning of a word or a sentence may ensue from an injudicious adherence to either principle alone. Thus, a type of response that is especially characteristic of children at early developmental levels, and of adults with serious psychological disturbances, is the incorporation of all or part of a sentence into the meaning of the word. In this type of response, there is an intrusion upon the meaning of the specific word of all or part of the separate meaning of the sentence; this intrusion not only yields an incorrect meaning for the nonsense word in the sentence at hand, it also makes it difficult for the subject to use the word appropriately in other contexts. At the other extreme, an inflexible adherence to some one delimited meaning as the correct one may slow down or even prevent the subject's understanding of sentences in which that meaning is inadequate.

One principal purpose of the Word Context Test is to determine the degree to which an individual subject utilizes the semantic principles, shows relatively low-level, context bound psychological processes in his attempts to find the meaning of previously unknown words. Given this purpose, it is not possible to assign a numerical score to the response a subject gives to each item and, summing these scores, to arrive at a single score which summarizes his performance on the total test. Instead, the test must be administered so as to permit the subject to make clear his understanding of the nonsense word in each sentence; these responses must then be analyzed in detail to determine whether, and how extensively, they reflect processes that are characteristic of relatively low levels of development. The purpose of the present manual is to present the criteria by which such response protocols are analyzed.

Before agreement can be reached concerning the scores that will be assigned to responses, there must be consensus concerning how the responses will be grouped into scorable units; therefore, the first section of the manual describes how the units of response are to be identified. Following this are separate sections which describe the criteria for assigning each of two different kinds of scores that are obtained from the responses: (1) the adequacy of the solutions that a subject offers; and (2) the processes by which the subject determines what the words signify.

A. Units of Response

A response unit is defined as a series of questions and replies which culminate in the delineation of the subject's understanding of the meaning of a word in a sentence. It will not necessarily be true that each reply will define a scorable unit. In fact, it may happen that the full explication of the word will not be achieved until the subject's initial response has been clarified by additional replies to several probes from the interviewer. For example, the following set of responses is one unit:

OUR REPLOGLE HAS A HIGH FENCE AROUND PART OF IT.
Our yard? (Interviewer asks why yard might fit.)[1] Because the yard...there is a yard and a fence around a house... on the property and they put a fence around it. (So what does REPLOGLE mean?) Yard...and a house on the property.

Notice that this subject did not clarify the meaning REPLOGLE had for him until the interviewer had asked two questions. Notice, also, that the first response -- "our yard?" -- appeared to be an adequate one; it was only when the interviewer asked the subject how REFLOGLE meant "yard" that the concrete nature of the subject's understanding of the word became clear and it became apparent that "yard" was fused with "house" and "property" in a global, unarticulated concept.

The following set of responses, only slightly longer than the preceding one, contains three response units:

BILL HAD TO LEAVE REPLOGLE BECAUSE HE WAS ILL.
(1) He had to leave school because he wass ill. (What does REPLOGLE mean?) He was in school...got ill and had to go home. (So what does REPLOGLE mean?) The school or the yard...just school.

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[1] Here and in all subsequent examples, the subject's responses will be presented without quotation marks and the interviewer's questions will be enclosed in parentheses.

(2) (Does it have the same meaning in sentence 2?) Yes. (How is that?) It says most of my friends did not have school that day. (What does REPLOGLE mean?) School.

(3) (Could it mean the same thing in sentence 1?) Our school has a high fence around it? (How could it mean that?) All schools should have fences around them. (And what does REPLOGLE mean?) School.

The preceding set of responses was scored as three distinct units. The first unit was the adequate solution "school," the second unit contained the subject's attempt to use this solution in the second sentence, and the third unit was his use of the solution in the first sentence. Again, this example illustrates the importance of defining the unit inclusively. In the first unit above, the subject appears initially to be fusing "school" with "yard," "home," and "ill"; he arrives at a delimited solution only at the end of this unit.

Sometimes subjects' responses do not follow so simple and orderly a pattern. There may be several functional units within one response to one sentence. When this occurs, each clearly distinct process is scored as a separate response unit.

A special sort of problem arises when the subject gives a response and then rejects it, explicitly or not. This may happen in one of three ways: (a) The subject may say immediately that the response is inadequate; in this case, the initial reply is not considered to be a response unit. (b) The subject may offer a solution, then be unable or unwilling to elaborate on it, and may then reject it, without offering it again as a possible solution; this type of reply, also, is not considered to be a response unit. (c) The subject may offer a solution and elaborate on it, and only then reject it; in such cases, two response units are scored, one being the initial solution and its explanation, the second being the rejection of that solution.

It should be clear that the principal criterion for determing a response unit is whether the interviewer and the subject have clarified the meaning of the nonsense word for the subject in one sentence of the series. Once it is identified, each response unit is scored for its adequacy, for the signification processes it reveals, and for the other four kinds of scores when they are appropriate.

B. Adequacy of Solution

Although the principal concern in scoring the Word Context Test is with the processes by which the subject arrives at a suggested meaning for a word, the adequacy of his attempted solution is an important aspect of his

performance.

For many purposes it will be sufficient to determine simply whether a solution is correct, adequate but not correct, or inadequate. Nevertheless, in scoring the protocols, it is helpful to distinguish more carefully than this among the solutions that the subject proposes; should these fine distinctions prove superfluous in subsequent analyses, of course, categories may be combined into broader, more general ones.

Any solution may be assessed not only in terms of whether it is objectively correct, adequate, or inadequate, but also in terms of whether the subject, himself, thinks it is adequate or inadequate. The subject may also refuse to offer a solution to some sentence. It may be seen, then, that a particular solution may be assigned to any of six categories, as follows:

NS: No solution, in which the subject responds "I don't know," or otherwise refuses to offer a solution despite repeated probing by the interviewer.

C: a correct solution, the designated meaning of the nonsense word.

AD: a solution which is not correct, but which fits the sentence for which it is offered. Occasionally a subject will attempt to carry over a previous solution to a new sentence but will be unable to do so without adding an article to the earlier solution. Such solutions are usually scored as adequate; they will also be scored as instances of mild grammatical change under the heading of Grammatization.

INAD: a solution that does not fit the sentence, and which is recognized as inadequate by the subject.

$\overline{\text{AD}}$: a solution which the subject judges to be adequate, but which is actually inadequate. For example, for the sentence MOST OF MY FRIENDS DID NOT HAVE REPLOGLE THAT DAY, the subject may offer the solution "house" and consider it to be an adequate one. Since "house" is not appropriate to this sentence, it cannot be scored as either adequate or correct, and is scored $\overline{\text{AD}}$.

$\overline{\text{INAD}}$: a solution that does, in fact, fit the sentence, but one which the subject considers to be inadequate. For example, in one sentence the subject arrives at "garden" as a solution for the word GUBFIND. For the sentence DON'T YOU THINK THAT THE GUBFIND IS VERY PRETTY? ASKED TIM, the subject says that "garden" does not fit, even though it does.

An assessment must be made of the adequacy of a solution for every sentence to which it is applied. When a solution is offered for the first time, it can be assigned to one of the above six categories. Subsequently, the subject will be asked whether the solution can be used in other sentences of the series. It will sometimes be important to consider the adequacy of the solution in both contexts; therefore, each instance of a generalized solution should be assigned to one of the following ten categories:

C-C: solutions that are correct in both the initial and the present contexts.

C-$\overline{\text{INAD}}$: solutions which are actually correct in both sentences, but which the subject considers to be inadequate when he generalizes the solution to a new context. For example, in the sentence NOBODY HAS EVER SEEN AN ONTRAVE, the correct solution, "idea," is frequently considered to be inadequate, especially by younger children.

AD-AD: solutions which are adequate in both contexts, but which are not correct for the entire series of sentences.

AD-$\overline{\text{INAD}}$: as in the example under C-AD, above, subjects sometimes reject earlier adequate solutions when they are, in fact, adequate to a new sentence.

AD-INAD: solutions which are adequate to one sentence but which the subject correctly recognizes to be inadequate when he attempts to generalize them to another sentence.

AD-$\overline{\text{AD}}$: solutions which were adequate in an earlier sentence and which the subject tries to generalize to a later sentence, contending that they are adequate when, in fact, they are not. For example, for the sentence OUR REPLOGLE HAS A HIGH FENCE AROUND IT, the subject offers the adequate solution "house." He then attempts to generalize this solution to the sentence MOST OF MY FRIENDS DID NOT HAVE REPLOGLE THAT DAY, contending that the solution fits the new sentence when, in fact, it is inadequate.

$\overline{\text{AD}}$-AD: a solution which had earlier been said, incorrectly, to be adequate to a sentence is an adequate solution when generalized to another sentence.

$\overline{\text{AD}}$-$\overline{\text{AD}}$: the solution is actually inadequate in both sentences but the subject, erroneously, considers it to be adequate in both.

$\underline{\overline{\text{AD}}\text{-INAD}}$: an inadequate solution, erroneously considered adequate in an earlier sentence, is now correctly labeled inadequate upon generalization to a new sentence.

$\underline{\overline{\text{AD}}\text{-}\overline{\text{INAD}}}$: this rare combination of responses is included for the sake of completeness. It occurs when a solution is inadequate to one sentence but is incorrectly considered adequate; upon generalization, the solution is adequate in the new context but the subject erroneously rejects it as inadequate.

It was mentioned earlier that the ten categories may be combined to form larger, more inclusive groupings. One principle that will often be useful for such combinations is the one, mentioned at the beginning of this section, which distinguishes objectively correct, adequate, and inadequate solutions, irrespective of the subject's judgments of their adequacy. With respect to one specific sentence, it may be observed that the categories C-C and C-$\overline{\text{INAD}}$ exhaust the objectively "correct" solutions; AD-AD, AD-$\overline{\text{INAD}}$, and $\overline{\text{AD}}$-$\overline{\text{INAD}}$ are all objectively "adequate" solutions; and AD-INAD, AD-$\overline{\text{AD}}$, $\overline{\text{AD}}$-INAD, and $\overline{\text{AD}}$-$\overline{\text{AD}}$ are "inadequate" solutions.

C. Signification Processes

Perhaps the most important set of scores that are obtained from analysis of responses to the Word Context Test are those that assess the extent to which the meanings a subject arrives at for a nonsense word are discrete and delimited, or whether he uses the word to express a complex idea, even including elements of the sentence in which the word is presented. Every response unit that is identified should, if at all possible, be scored for the type of signification process it represents. The scoring categories for signification processes vary from the complete fusion of the meaning of the word with the sentence in which it appears, at one extreme, to the formulation of a fully adequate solution, at the other. At intermediate points on this continuum processes are identified which involve progressively less contextual contamination and greater and greater delineation of a single meaning. As was true with the categorization system used in scoring the adequacy of responses, these categories may be combined to divide the total continuum into fewer and broader classes than are provided by the full set of coding categories.

Each qualitatively different response that a subject gives should be scored only once. In particular, if a subject uses a response in one sentence that is scored in some one category, that response should not be scored in later sentences so long as it reflects the same kind of signification process. On the other hand, if its function has changed, so that the response reflects a different type of process in a later sentence, it is then scored in the newly-appropriate category.

1. Signification Based on Word-Sentence Fusion (F).

Two different types of word-sentence fusion are distinguished. In both, the meaning of the unknown word incorporates all or part of the meaning of the sentence; however, responses that fall in the first category, called sentence-core concept, reveal a meaning for the unknown word that is much less differentiated from the sentence than is true for responses in the second category, which is termed holophrastic gradient.

a. Sentence-core (SC). In responses that are labeled sentence-core, the unknown word is given a meaning which carries the entire context of the sentence in which it appears; the nonsense word itself is given no distinct, individualized meaning. There are a number of forms in which this process may be manifested; any one of these forms is scored under the general heading of sentence-core.

(i) Total or partial restatement of the sentence. In this type of response, the subject simply restates the sentence, attributing its meaning to the unknown word without giving any more delimited meaning when questioned by the interviewer.

Example: In the sentence THE SOLDEVE YOU ARE LOOKING FOR IS AROUND THE CORNER, NEXT TO THE PARK, one subject said that SOLDEVE meant "It's around a corner, near a park." No amount of questioning gave a more fully differentiated meaning for the word.

(ii) Condensation of the context. In this type of response, the subject uses the essential meaning of the sentence to define the unknown word. Thus, in the preceding example, the subject might have said that SOLDEVE means "looking for things," or "giving directions." In either case, the solution would not be adequate to the meaning of SOLDEVE in the context; it derives exclusively from the meaning of the sentence, and condenses that meaning into a phrase.

(iii) A word from the sentence. Occasionally, the subject will use a word from the sentence for the meaning of the unknown word. If it is clear that the meaning of the word derives directly from the sentence itself and is not differentiated from the meaning of the sentence or other words therein, the response is scored as sentence-core. In the preceding example, if the subject gave as the meaning of SOLDEVE "park," or "corner," it would be clear that the words were taken from the sentence, and that the meaning of the unknown word was not differentiated from the meaning of the sentence as a whole.

It sometimes happens that one of the words in the sentence makes

sense when substituted for the nonsense word, so that it is not possible to say unequivocally that sentence-core has been employed. For example in AS HE LOOKED AT THE PICTURE, JOHN TRIED TO DECIDE WHICH CONTAVISH HE LIKED BEST, the answer "picture" might conceivably be an adequate response. Again, in THEY TRIED TO MAKE HER POSKON, BUT SHE WAS TOO UNHAPPY, "happy" might be an adequate response. The subject's elaboration on his solution in response to the interviewer's questions will usually make it clear whether the subject has used a word from the sentence as an adequate response instead of as a sentence-core response. However, if the interviewer should not probe sufficiently or if, for some other reason, the subject's use of the word was not clarified, such a response should be scored as "adequate," not as sentence-core.

(iv) Evaluation of the sentence context. When the subject offers an evaluation of the meaning of the sentence as the meaning of the unknown word, sentence-core is scored.

Example: WE TRIED NOT TO POSKON WHEN THE DOG SNEAKED INTO THE KITCHEN AND ATE OUR DINNER. POSKON means "bad." (How does it mean that?) Because it was a bad thing when the dog sneaked in and ate their dinner. (So what does the word POSKON mean?) Bad. (Would you read the sentence again with the word in it?) We tried not to POSKON when the dog sneaked into the kitchen and ate our dinner. (And what does POSKON mean?) It means "bad."

Other evaluative reactions that are sometimes found include such responses as "that's right" or "POSKON is wrong," which are not made more specific even with fairly intensive questioning.

In each of the above instances, a subject may, at first, give an answer that would be considered appropriate if taken by itself; further explanation of his meaning, however, may indicate the presence of sentence-core, and his response should be scored in that category.

Example: ON SUNDAYS I DEGARET WITH MY FATHER. Go with my father? (How does it mean that?) Because on Sundays I go places with my father? (So what does DEGARET mean?) It means on Sundays I go with my father. (Could you read the sentence for me again?) On Sundays I DEGARET with my father...go with my father. (And what does the word DEGARET mean?) On Sundays I'm with my father.

Because he does not offer the specific solution "go," but includes "I'm with my father" in every solution he offers, this unit is scored as SC.

b. Holophrastic Gradient (HG). The word holophrasis means the expression of a sentence or a complex idea in a single word. In the preceding section, we have grouped under the category sentence-core attempted solutions that attribute to the nonsense word the meaning of the entire sentence or a major part of it. Solutions which carry only a part of the ideas of the larger sentence, especially from parts of the sentence that are adjacent to the nonsense word, will be scored in the category holophrastic gradient. In such solutions, the word is given some degree of independence from the sentence as a whole; nevertheless, there is an intrusion of the context into the meaning of the nonsense word, so that a truly delimited meaning is not attained.

This intrusion may be explicit in the meaning that is offered.

Example: In the sentence DON'T YOU THINK THE GOBFIND IS VERY PRETTY? ASKED TIM, the solution "pretty picture" is scored as holophrastic gradient because, although the entire meaning of the sentence is not included in the solution, a part of the sentence that is directly contiguous to the GUBFIND is included.

Alternatively, the intrusion may be implicit; that is, it may not be clear from the initial response that holophrastic gradient should be scored, but this may become apparent when the subject carries a seemingly circumscribed solution over to his interpretation of another sentence.

Example: In the sentence of the preceding example, one subject gave the correct solution "picture." In the next sentence, CAN YOU MAKE A GUBFIND OF A HOUSE?, the subject said that GUBFIND meant "pretty picture," which indicated that the previous solution had drawn part of its meaning from a neighboring word, even though this holophrasis had not been apparent earlier.

Alternatively, this intrusion might have become apparent not by the use of "pretty picture" as a solution in later sentences, but by the use of the adjective "pretty" in justification of the solution in later sentences where that attribute is not implied by the meaning of the sentence. In such responses, the subject indicates that he carries along the context of an earlier sentence in the meaning of the nonsense word.

Still another indication of such holophrasis would be the elimination of the original signification in later sentences, and the use of the solution "pretty" with the explanation, for instance, "you can make a house pretty." Again, the lack of

differentiation of the word GUBFIND from the original context, and the expression of a complex idea in the one word GUBFIND is revealed in the subject's explanation.

In all of these cases of implicit holophrasis, the coder must go back and change the score that was originally given to the solution. That is, if it becomes apparent two or three sentences later that part of the context of an earlier sentence is being carried along with a solution that originally seemed circumscribed and adequate, holophrastic gradient is scored for the sentence in which the holophrasis originated, the sentence that includes the element which is being carried along.

2. Signification Involving Embeddedness of the Word in the Sentence (E).

Solutions that involved word-sentence fusion were those in which the sentence, itself, was included in the definition of the word. Another form of contamination of the meaning by the sentence, to be termed embeddedness, occurs when the subject offers an apparently circumscribed meaning for the nonsense word, one which includes no elements of the sentence context, but is then unable to manipulate this meaning in other sentences without carrying along parts of the original context. Instead of including the meaning of a preceding sentence in the solution, however, he retains an earlier solution and somehow relates it to a new, different solution. Three principal forms of embeddedness are distinguished: aggregation, pluralization, and transposition.

a. Aggregation (AG). Aggregation is scored when a circumscribed solution is achieved for one sentence, a different circumscribed solution is achieved for a second sentence, and these two solutions are then combined into one meaning which the subject contends holds in both sentences. Aggregation may occur in the following ways, each of which is scrored simply as an aggregational solution.

(i) Situational relation. A solution of this kind occurs when an over-all situation is postulated of which two different solutions are considered a part. For example, the subject may give "paint" as the solution in one sentence, "wet" as an adequate solution in a second sentence, and his over-all solution may be "paint and wet"; when pressed for an explanation, he says "paint can be wet."

(ii) Aggregation by Casual Relation. Here, two solutions are combined by saying that one causes or is responsible for the second. For example, in sentence TOM WOULD NEVER ASHDER ANYONE ELSE WHEN THEY WERE WORKING, the subject may offer the adequate solution "bother." in the succeeding sentence, JAMES WISHED HE COULD DO SOMETHING TO ASHDER HIS MOTHER, the subject may now offer the solution "help." When asked the meaning of ASHDER the subject may now say "bother and help"

and may justify this solution by saying that "he is helping her because he is not bothering her."

(iii) Aggregation by Juxtaposition. It frequently happens that the subject will simply aggregate the solutions to two different sentences -- for instance, will say "paint and wet" or "help and bother" -- but will not give either a situational or casual explanation in response to further questioning. Such a solution is again scored as aggregation. Similarly, if the subject says "paint or wet" and the connective "or" does not seem to indicate that the subject means a mutually exclusive relation, the solution is scored aggregation.

Note that in every case of aggregation the solution as offered must function as a solution; that is, it must be used as the solution in a sentence.

b. Pluralization (PL). In the case of pluralization, the embeddedness of the solution in the earlier context is evidenced by the fact that two or more specific solutions are subsumed under an overly-general concept, one that is common in some way to each of the specific solutions, but is, itself, inappropriate as a solution for any of the sentences.

Example: In the sentence WE CAN TELL HE IS BUSY BY THE WAY HE DEGARETS, the subject gave the adequate solution "work." In the second sentence HE WAS SO TIRED, HE FOUND IT HARD TO DEGARET, the subject gave the meaning "read." In each case the solution was adequate to the context. Upon inquiry, however, the subject gave the over-all solution as "doing something" and says "when you read, you are doing something, and when you work, you are doing something." In all subsequent sentences, the subject continued to offer the over-general solution "doing something."

It should be noted that pluralization is never scored in the first sentence, since the solution to the first sentence must be an adequate one for pluralization to be scored later. In addition, pluralization is not scored repeatedly if the subject continues to use a pluralized meaning. If in the third sentence, for instance, the subject inserts "work" as the specific meaning for the sentence and retains "doing something" as the over-all solution, pluralization is not scored a second time.

c. Transposition (T). As in pluralization and aggregation, the subject continues to provide specific, delimited solutions to the nonsense words in the individual sentences but to use multiple solutions when giving a general meaning for the nonsense word. As distinct from pluralization, however, in transposition the subject derives two different solutions and then finds some way by which the solutions are similar.

Example: In one sentence the subject arrived at the adequate solution "food," and at the adequate solution "water" for a second sentence. The over-all solution, he says, is still "food" because "Well, water is like food."

It should be clear that in transposition, the general solution is originally a meaning that fits a sentence; other delimited solutions to later sentences are equated with the over-all solution by means of expressions such as "sort of," "kind of," or "like."

3. Signification That Involves Generalization of Word Meaning (G).

The last few categories under embeddedness referred to the use of concepts with overly-general meanings which subsume two or more relatively specific solutions. It sometimes happens that a subject will move to an overly-general meaning, as above, but will then use that general meaning for a new solution, with slight differences of meaning from one sentence to another. Such a response is scored as generalization.

Example: In WE CAN TELL HE IS BUSY BY THE WAY HE DEGARETS, the subject gave the solution "does something," a response that would be scored Simple Holophrasis (see below). In the next sentence, HE WAS SO TIRED HE FOUND IT HARD TO DEGARET, the subject's explanation revolved around the idea of working, but "doing something" remained the solution that he offered for the word DEGARET. In other words, the meaning of "do something" varied from one sentence to the next, since different meanings were evident for the same word in different sentences, the response was scored as generalization.

As with pluralization, discussed above, generalization reflects the subject's attempt to fit an old solution into a new sentence; thus, it is not scored the first time a concept is used, but only when the meaning of the concept is subtly shifted from one sentence to the next. In using solutions such as "do," "thing," etc. the subject may not explicitly give a different meaning to the word in the different sentences. Nevertheless, generalization is scored if different meanings are necessarily implied, if there must be a shift in the meaning of a solution from one sentence to another in order for his responses to make sense. Note that generalization is scored only once for each specification of the overly-general word. Thus, if the subject in the example above had used "doing something" to signify "work" in a later sentence than the one described, this solution would not have been scored as generalization, since the equation of the two concepts would have been made in the earlier context, and carried over to this one.

4. Signification That Involves Holophrasis That Does Not Derive From the Sentence (NS).

In responses that were scored in the preceding categories, the solutions were intimately related to the sentences in which the nonsense word was embedded. In the case of word-sentence fusion, the meaning of the sentence itself, or that of part of the sentence, was incorporated directly into that of the nonsense word. In the case of embeddedness, relatively discrete meanings were discovered to be somehow inextricable from the context in which they occurred. At a somewhat higher level, there are solutions which are not obviously contaminated by the context of the sentence, and yet which do not possess the kind of semantic stability that is necessary for adequate signification. In the present category, three such types of response are identified, all of which involve some form of holophrasis -- i.e., the condensation of a complex idea in the unknown word.

(a) Holophrastic Response Not Bound to the Specific Sentence (NS). The essential difference between the holophrastic concepts that will be discussed in this section and those scored earlier is that the context of the sentence is no longer condensed in the meaning of the unknown word. Three different types of such concepts may be scored: simple holophrasis, concretization, and chaining.

(i) Simple holophrasis. A response which indicates that the subject intends for a concept to have a comprehensive meaning is scored as simple holophrasis.

Example: In response to the sentence NOBODY HAS EVER SEEN AN ONTRAVE, a subject gave the solution "animal." In his explanation, he made it clear that he meant a "prehistoric animal" and that nobody had ever seen a prehistoric animal. Nevertheless, he persisted in giving only the solution "animal," with the more comprehensive meaning intended.

It should be noted that simple holophrasis is scored only if the subject specifically indicates the inclusive nature of his response in his explanation. Thus, if the subject had given "animal" as the solution to the preceding sentence, simple holophrasis would not have been scored, even though this solution would not have been adequate in the sentence, being untrue.

Example: In the sentence MOST OF MY FRIENDS DID NOT HAVE REPLOGLE THAT DAY, one subject gave "a happy birthday" as the meaning of REPLOGLE. This solution was termed simple holophrasis, owing to the condensation of a phrase into the meaning of one word.

In explaining the meaning of his solution, the subject will often concretize the solution or create a specific situation. This process is considered to be simple holophrasis only if the solution cannot be appropriate in the particular sentence unless the extended meaning is given it. When the solution can stand alone, and the explanation is not essential to make sense of the solution in the sentence, simple holophrasis is not scored.

A particular problem is presented by general solutions of the type "thing," or "place." In the sentence, THE SOLDEVE YOU ARE LOOKING FOR IS AROUND THE CORNER NEXT TO THE PARK, the solution "thing" is potentially a delimited one and is therefore considered adequate, even when the subject gives it a concrete example in his explanation saying, for instance, "like a grocery store or something." Similarly, in the sentence AS HE LOOKED AT THE PICTURE, JOHN TRIED TO DECIDE WHICH CONTAVISH HE LIKED BEST, "thing" would be considered a delimited and adequate solution. On the other hand, in the sentence NOBODY HAS EVER SEEN AN ONTRAVE, the solution "thing" refers to a whole complex of phenomena, and would be scored as simple holophrasis. Finally, in the sentence SOME PEOPLE COLLECT STAMPS, SOME COLLECT PICTURES, AND OTHERS COLLECT CORPLUMS, the solution "things" would be scored as sentence-core, because the whole sentence is about the collection of different "things."

(ii) Concretization (C). In order to fit a solution to another sentence, the earlier solution may be concretized by the addition of specific verbal elements, ranging from an adjective to a whole phrase. Concretization may be implicit; it need not be expressed directly in the solution. If it becomes clear from the subject's explanation that the solution is appropriate only upon concretization, that it cannot stand alone, concretization is scored.

Example: In the sentence NOBODY HAS EVER SEEN AN ONTRAVE, a subject gave the solution "tiger." For the succeeding sentence WHY DON'T YOU ASK JANE ABOUT HER ONTRAVE FOR THE PLAY?, "tiger" was said to fit again. It became clear from the explanation, however, that the subject meant "stuffed tiger," and that this concretization was necessary for the subject to continue giving "tiger" as the solution.

Note that concretization is only scored if the subject is offering a concrete instance of an earlier solution, when the subject is trying to use a solution that has already been developed in an earlier sentence.

(iii) Chaining (CH). In chaining, a concept A is formed for one sentence, and is retained in a second sentence by the use of a mediating concept, B, with concepts A and B related either spacially or casually.

Example: (Taken from Werner and Kaplan) In the sentence A CORPLUM

MAY BE USED FOR SUPPORT, the subject gives the solution "rope." Rope is then said to fit A CORPLUM MAY BE USED TO CLOSE OFF AN OPEN SPACE. The subject explained "In a cave you can pull a rock in with a rope -- the rock would shut the cave off." Since "rope" is still the stated solution, justified by the situational relation of rock to rope, chaining is scored.

Example: In the sentence IT IS HARD TO GET A JOB IF YOU CANNOT PURLAG, the subject gave the solution "work." To the succeeding sentence, SOMETIMES MY EYES HURT WHEN I PURLAG, he gives "work" as the solution again and explains that "when you read, you work."

5. *Inadequate Signification That Is Relatively Differentiated From the Context* (RD).

There is a form of inadequate signification which does not really involve the condensation of a complex idea in the meaning of a single word, but which, nevertheless, show that the subject has not arrived at a stable, clearly differentiated meaning for the unknown word. Such processes constitute the highest level of inadequate signification that is categorized by the present scheme. Two such categories will be defined: syncretic concepts, and fluid modification.

(a) Syncretic Concepts (SC). Syncretism is defined in philology as the fusion of two or more inflectional forms that were originally different. Following this definition, syncretic concepts are those that fuse qualities which, in mature thought, are discrete and cannot be brought together congruently. Thus, the use of the same verb in its active and its passive form, the use of a word in its positive and negative senses, or the use of the same word to express both subjective and objective aspects of a situation are all classified as syncretic concepts. In such solutions, the meaning of the unknown word is obviously more delimited than in solutions we have considered previously; nevertheless, the subject has shown a degree of instability by such use of a concept.

Example: The use of a word in its positive and negative forms, as "happy" in one context and "unhappy" in another; assigning the meaning "bother" to the word in one sentence and "be bothered" in another; the meaning "work" in one sentence and "worker" in another; or the word "learn," in the sense of being a student, in one sentence and in the sense of "to teach" another.

(b) Fluid Modification (FM). In some responses there is no evident

holophrasis or syncretism, but there remains some degree of generality in the solution that is offered. Most commonly, the sense of the solution is varied from one sentence to another, perhaps through the use of metaphor or of a homonym. Such responses are scored in the category fluid modification.

Example: The word "top" might be used to mean both a toy and the upper part of an object. Or, from Werner and Kaplan, in the sentence THE PLAN TO BUILD THE HOUSE WAS A BORDICK BECAUSE IT COST TOO MUCH, the subject offered the solution "sickness" as an extension from an earlier solution, explaining "the house is sick with a lot of holes and it costs a lot of money to fix it." Here the solution "sick" is used homonymously, to mean defective in one context and physically ill in another.

6. Adequate Response (ADR).

It is intended that every independent response unit in a subject's protocol be scored for some form of signification. Therefore, any response which has not been previously offered, and which does not appear to involve some inadequacy of signification, as enumerated above, is scored as an adequate response.